

IV. TOHONO O'ODHAM NATION

The Reservation for the TON (formerly the Papago Tribe) is located in extreme south central Arizona in the arid Sonoran Desert, to the west of the City of Tucson. The TON Reservation, which encompasses 2,773,357 acres, stretches 90 miles across Pima County and along the Mexican border. Federal, State and Tribal agencies are the largest employer on the Reservation. Cattle-raising and related activities form the second major economic sector. The agriculture, retail-tourism and utilities sectors of the Reservation's economy are also expected to grow as Tribal development plans are implemented.

IV.A. Proposed Allocations

The TON received an original CAP allocation totaling 45,800 afa, to be distributed to three districts as follows: San Xavier District-27,000 afa; Schuk Toak District-10,800 afa; and Chuichu District-8,000 afa. Construction of facilities needed to deliver CAP water to both the San Xavier and Schuk Toak Districts for agricultural use have been or are in the process of being constructed. Water is scheduled to be delivered through these facilities to both districts during 2000. In addition, the San Xavier District has indicated a desire to recharge additional CAP water, and some portion could be leased by the Nation to other entities within the Tucson area.

SAWRSA of 1982 (PL 97-293), also authorized delivery of an additional 28,200 afa suitable for agricultural use—23,000 af to San Xavier District, and 5,200 af to Schuk Toak District; however, the source of this additional 28,200 afa was not identified. Under Settlement, Non-Settlement 2 and Non-Settlement 3 Alternatives, the source of the 28,200 af would be identified as CAP water and provided to TON. Table L-Indian-21 summarizes the proposed allocations by alternative. Table L-Indian-22 provides detail of the allocations' priorities under each alternative.

Table L-Indian-21 CAP Allocation Draft EIS TON CAP Allocations (afa)					
	Alternative				
CAP Allocation	No Action	Settlement	Non-Settlement 1	Non-Settlement 2	Non-Settlement 3
San Xavier District-Existing	27,000	27,000	27,000	27,000	27,000
San Xavier District-Proposed	0	23,000 ^(a)	0	23,000 ^(b)	23,000 ^(b)
San Xavier District-Subtotal	27,000	50,000	27,000	50,000	50,000
Schuk Toak District-Existing	10,800	10,800	10,800	10,800	10,800
Schuk Toak District-Proposed	0	5,200 ^(a)	0	5,200 ^(b)	5,200 ^(b)
Schuk Toak District-Subtotal	10,800	16,000	10,800	16,000	16,000
Chuichu District-Existing	8,000	8,000	8,000	8,000	8,000
Chuichu District-Proposed	0	0	0	0	0
Chuichu District-Subtotal	8,000	8,000	8,000	8,000	8,000
TON – Existing	45,800	45,800	45,800	45,800	45,800
TON – Proposed	0	28,200 ^(d)	0	28,200 ^(d)	28,200 ^(d)
TON – Total	45,800	74,000	45,800	74,000	74,000
Notes: (a) NIA priority water. (b) M&I priority water. (c) All other listed allocations are Indian priority water. (d) CAP water is identified as the source of water to be provided under SAWRSA.					

Table L-Indian-22 CAP Allocation Draft EIS TON Priority of CAP Allocations (afa)					
CAP Allocation Priority	Alternative				
	No Action	Settlement	Non-Settlement 1	Non-Settlement 2	Non-Settlement 3
Indian	45,800	45,800	45,800	45,800	45,800
M&I	0	0	0	28,200	28,200
Non-Indian Ag	0	28,200	0	0	0
Total	45,800	74,000	45,800	74,000	74,000
Notes:					

IV.B. Non-Binding Plans to Take and Use CAP Water

A letter soliciting information regarding non-binding plans to take and use CAP water was sent to TON. In the absence of a response, the plans presented in this section were developed based upon information provided in the Environmental Assessment of the San Xavier Farm Rehabilitation Project (U.S. Bureau of Reclamation, June 1988) (Rehab EA), *Final Environmental Assessment, Tohono O'odham Nation Water Supply Project, Central Arizona Project CAP Link Pipeline Project* (U.S. Bureau of Reclamation, July 1999) (CAP Link Pipeline EA) and discussions with Reclamation staff. They are speculative in nature and are presented merely to provide a basis for comparing the potential range of impacts that could occur across the range of alternatives.

IV.B.1. Uses

Potential uses of CAP water received under each of the alternatives are summarized in Table L-Indian-23. The SAWRSA currently allows the Nation to lease water for use off-Reservation within the Tucson AMA, and water has been leased on a short-term basis in the past. Although discussions have occurred in which lease of CAP water has been brought up, for purposes of this analysis, it is assumed no lease of the water obtained through any of the alternatives considered under this action would occur.

Table L-Indian-23 CAP Allocation Draft EIS TON Additional CAP Allocations Potential Non-Binding End Uses of Water (afa)					
	Alternative				
Use	No Action	Settlement	Non-Settlement 1	Non-Settlement 2	Non-Settlement 3
San Xavier District					
Irrigation-Farm Extension Project, Farm Rehabilitation Project, additional Acreage	0	15,000	0	15,000	15,000
Groundwater Recharge	0	8,000	0	8,000	8,000
San Xavier District Total	0	23,000	0	23,000	23,000
Schuk Toak District					
Irrigation-New Farm Project and Additional Acreage	0	5,200	0	5,200	5,200
Schuk Toak District Total	0	5,200	0	5,200	5,200
Chuichu District-Total^(a)	0	0	0	0	0
TON Total	0	28,200	0	28,200	28,200
Notes:					
(a) Not evaluated as part of this draft EIS.					

IV.B.1.a. San Xavier District

Under the Settlement, Non-Settlement 2 and Non-Settlement 3 Alternatives, the San Xavier District would receive 23,000 afa of CAP water. Under the Settlement Alternative, the water would be of an NIA priority; under Non-Settlement 2 and 3 Alternatives, the water would be of an M&I priority. For purposes of this draft EIS, it is anticipated approximately 15,000 af would be used for agricultural purposes. It is estimated approximately 3,000 acres would be developed. Typical crops grown in the area include cotton, alfalfa, small grains, and vegetables.

For purposes of this draft EIS, it is anticipated the balance would be made available for on-Reservation recharge (both managed and constructed). Managed recharge is anticipated to occur within existing arroyos and river channels; constructed recharge would be through constructed recharge basins. Facilities associated with constructed recharge basins include

infiltration basins, pipelines and pumps. The infiltration basins must be dried and scarified on a periodic basis to maintain infiltration rates. Accumulated sediment may need to be scraped and removed periodically; however, CAP water is typically low in sediment, therefore, little or no sedimentation of the basins may occur.

Other uses of water, mentioned in various contexts by the District, include growing mesquite, habitat enhancement, river restoration, recreation and mining.

IV.B.1.b. Schuk Toak District

The Schuk Toak District could use the 5,200 afa it would receive under the Settlement, Non-Settlement 2 and Non-Settlement 3 Alternatives to expand its agricultural development within the District. An estimated 1,000 acres could be developed with this amount of water. Typical crops grown include cotton, alfalfa, small grains, and vegetables. This District could also choose to recharge the water.

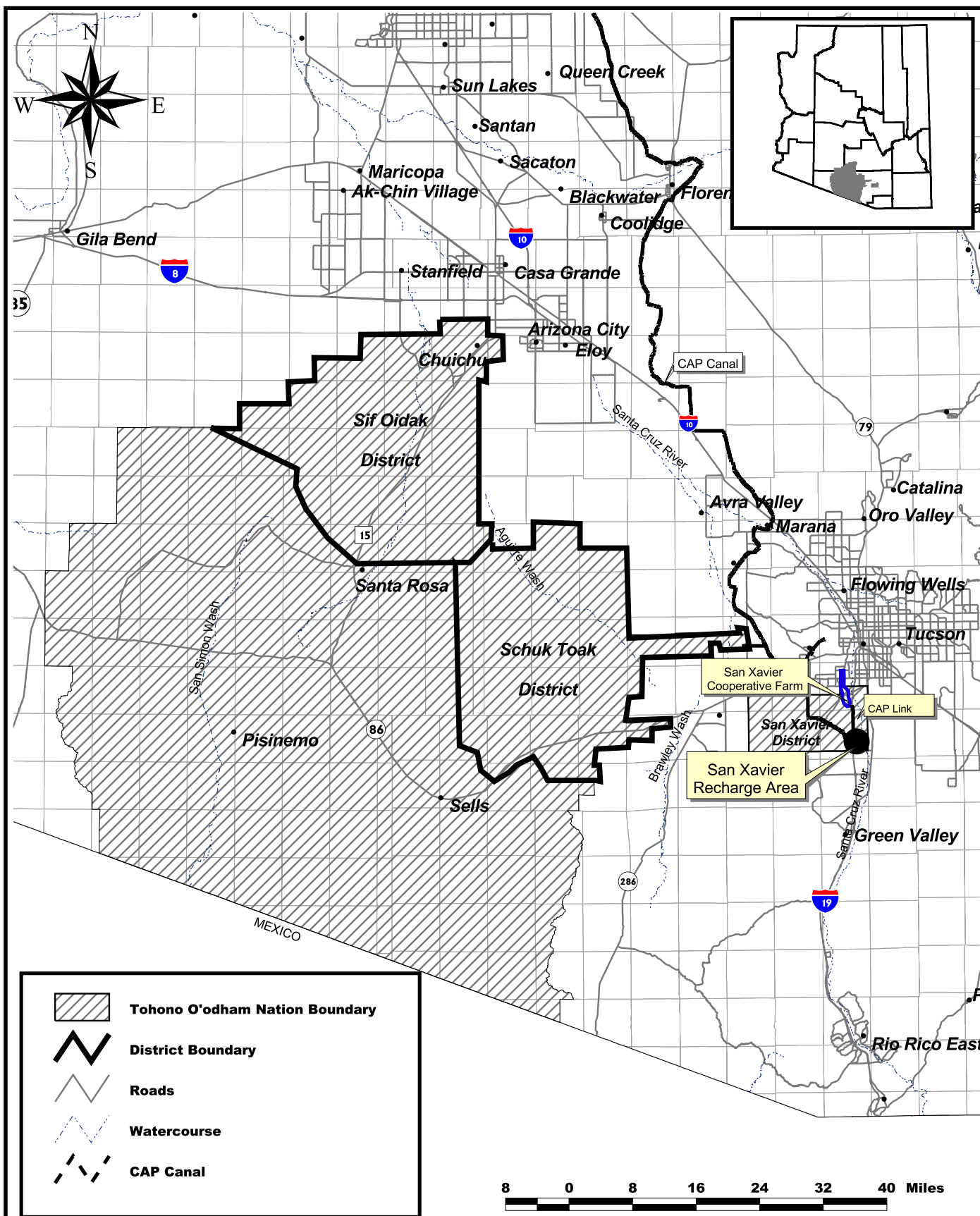
IV.B.2. Facilities

IV.B.2.a. San Xavier District

The San Xavier District is currently initiating construction of the CAP Link pipeline, an estimated 5.6-mile long, underground pipeline to be constructed between the CAP Reach six pipeline at the San Xavier Turnout No. two and the District's existing water distribution network located at the south end of the San Xavier District Cooperative Farm. This pipeline will provide CAP water for agricultural purposes on the rehabilitated San Xavier Farm and Farm Extension project east of Interstate 19. The pipeline alignment is shown in Figure L-IND-8. The pipeline has been designed to deliver up to 11,500 af. Approximately 4,500 af will be used to irrigate the Cooperative Farm, and the remainder will irrigate the future Farm Extension planned to be developed east of Interstate 19.

Assuming the 15,000 af from the proposed allocation would be used for irrigation, it is assumed the additional land to be developed would be located in the same general vicinity of the existing Cooperative Farm and Farm Extension project. Although it may be possible to deliver the additional water through the CAP Link pipeline, it is assumed additional laterals would need to be constructed to deliver the water received as a result of this project out to the new acreage that could be developed.

To estimate the maximum land disturbance that could occur from recharge activities, direct recharge of the remaining 8,000 af was assumed. This would disturb approximately 70 acres—50 acres for the basins themselves and 20 acres for operation and maintenance activities. For purposes of this draft EIS, it is anticipated the constructed recharge basins would be located adjacent to the Santa Cruz River. However, no specific areas can be identified for these facilities; additional testing would be needed to determine feasible locations for direct recharge. Again, it may be possible to deliver the additional water through the CAP Link pipeline; however, additional pipeline(s) would need to be constructed to deliver the water to the recharge area(s).



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CAP Allocation Draft EIS **General Location Map** **Tohono O'odham Indian Nation**

Figure #L-IND-8

Additional investigations would need to be conducted to determine recharge capacities of the areas where in-channel recharge appeared feasible. There would likely need to be construction of facilities to deliver water to these areas, although it is too speculative at this stage to estimate. However, for purposes of this draft EIS it is assumed there would be less disturbance overall if in-channel recharge occurs rather than direct recharge. And, it is assumed there would be even less disturbance, and potentially some benefit, if the water was used for habitat enhancement.

IV.B.2.b. Schuk Toak District

Should the Schuk Toak District decide to directly recharge its 5,200 afa of additional CAP water, approximately 40 acres would be needed—30 acres for the basins themselves and 10 acres for operation and maintenance activities. It is assumed if indirect recharge was chosen, it would disturb less acreage. No tentative or specific locations can be identified for potential recharge areas at this time.

If the Schuk Toak District decided to develop additional agricultural land with this 5,200 afa, the estimated 1,000 acres would likely be developed adjacent to the existing New Farm project.

A pipeline system was recently constructed to deliver CAP water from the Tucson Aqueduct to the Schuk Toak District, for use on the Schuk Toak New Farm project. It is anticipated there would be sufficient capacity in this pipeline to convey the additional 5,200 afa to the District. It is anticipated additional pipeline(s) would need to be constructed to convey the water to either the recharge area(s) or the additional agricultural acreage that would be developed. Additional pipeline alignments are unknown at this time.

IV.C. Population Projection

The population in 1985 for the TON was 3,991. The estimated 2001 population level for the TON is 3,991, and the estimated 2051 population level is 8,984. The population is expected to grow by approximately 56 percent over the 50-year CAP contract period (i.e., 2001-2051).

IV.D. Environmental Effects

The following discussion provides some general information regarding these probable construction projects and provides a general identification of potential environmental impacts and potential mitigation measures.

IV.D.1. Land Use

TON's land use includes agriculture in the San Xavier District, and Tribal Communities in both the San Xavier District and the Schuk Toak District.

IV.D.2. Archaeological Resources

Cultural resources in the TON reflect the long history of human occupation in the Santa Cruz River basin. Significant deposits dating to the Archaic (e.g., AZ AA:15:92(ASM)) and possibly the Paleoindian periods (e.g., AZ AA:16:39(ASM) in the Schuk Toak Archaeological District),

and Hohokam sites ranging from large villages with one or more ball courts (e.g., Punta de Agua, Martinez Hill) to small farmsteads and surface scatters associated with resource procurement and processing, have been documented within the Reservation's boundaries (e.g., Marmaduke and Robinson 1983). Other prehistoric site types include trails, *cerros de trincheras*, and petroglyph loci. Protohistoric and early historic rancherías and other remains of native cultures—including Pima, Papago, Sobaipuri, and Yaqui—might be expected to occur throughout the entity, as are deposits associated with the area's Spanish occupation (e.g., Mission San Xavier del Bac, Garcia Ranch, Agua Caliente Ranch). Later historic sites related to ranching, agriculture, mining, and transportation also are known. The TON has a Cultural Resources Division. Cultural resource sensitivity areas in this entity are shown in Figure L-IND-9. Based on the limited data used to generate the cultural sensitivity designations, the potential for cultural resource impacts in this entity is high. Farm development and pipeline construction as well as associated activities such as borrow sites, spoil areas, construction yards, equipment storage, and field offices have the potential to impact historic and archaeological sites. Section 106 compliance, including consultation with the affected Tribes would be carried out to identify significant sites and develop a plan to mitigate or avoid them.

IV.D.3. Biological Resources

IV.D.3.a. Existing Habitats

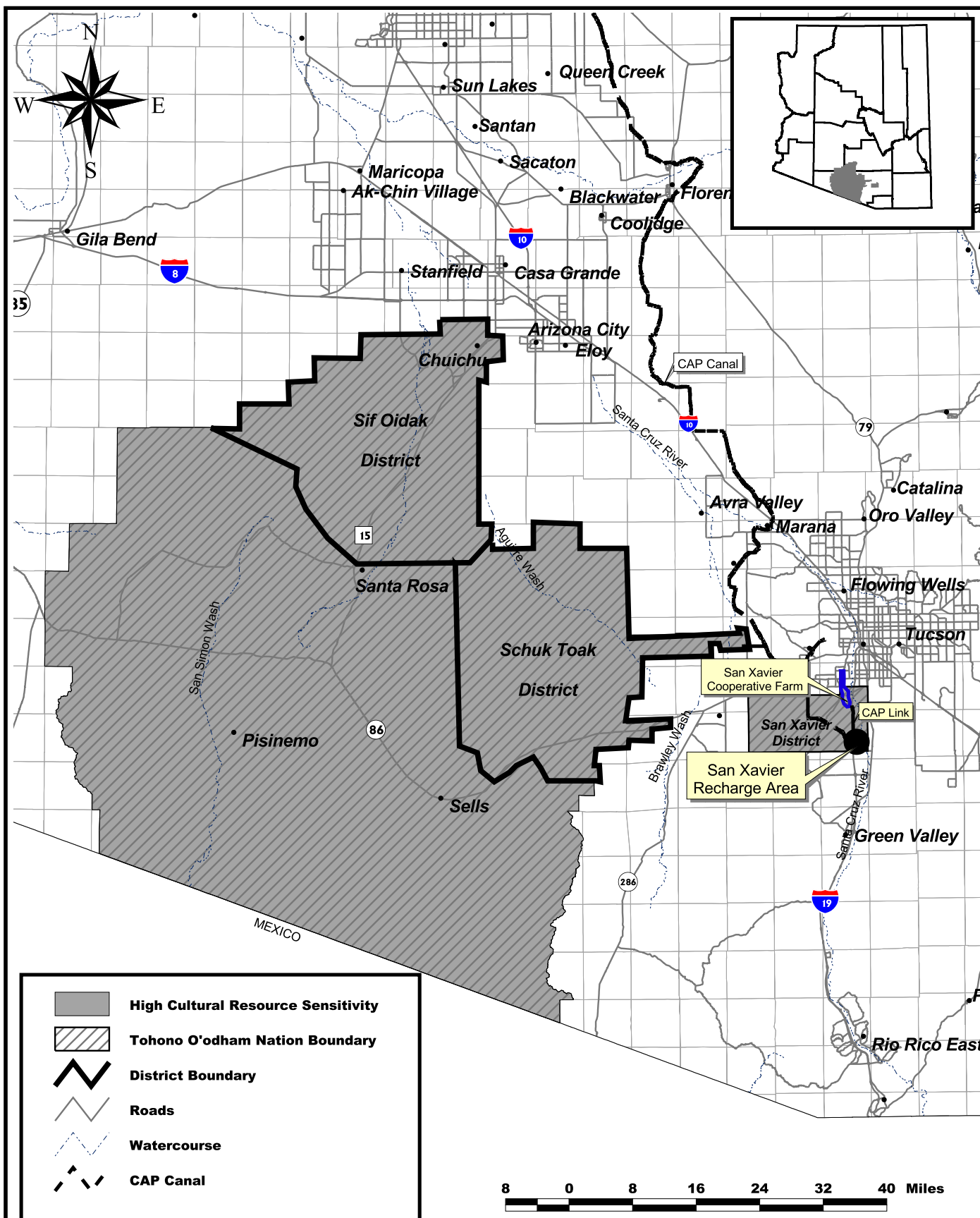
The TON is situated within the basin and range region of the Sonoran Desert, where the low mountain ranges of granitoid and extrusive volcanic rock are interspersed among plains of alluvium. The primary biotic Communities are the Arizona Upland Subdivision and the Semidesert Grassland of the Sonoran Desertscrub. Toward the west, there is some influence from the Lower Colorado Subdivision. Madrean Evergreen Woodland dominates the upper E. Intermittent water along the Santa Cruz supports riparian woodland.

IV.D.3.b. Impacts to Biological Resources

New agriculture and recharge basins within this planning area over the 50-year study period will result in loss of an estimated 4,070 acres of Sonoran desertscrub and Bursage-foothill Paloverde Association. These natural areas have saguaro, mesquite, desert ironwood and several cacti species, which will be lost as this development occurs. The faunal component will also be affected. With regard to biological resources, there is no difference in impacts between Settlement, Non-Settlement 2 or 3. In the San Xavier District, the possible use of CAP allocation includes growing mesquite, habitat enhancement and river restoration, all of which could be positive impacts to the local habitat.

IV.D.3.c. Summary of Possible Impact to T&E Species

This Tribal entity is located within Pima County for which there are 16 T&E species listed by USFWS. However, potential habitat only exist for cactus ferruginous pygmy-owl and the Pima pineapple cactus. There is no designated critical habitat (C) for the Pima pineapple cactus. There is potentially suitable habitat for the cactus ferruginous pygmy-owl within the TON. In order for Reclamation to comply with Section 7 of the ESA, detailed species surveys of the potentially suitable habitat would be required. Based on the results of these surveys, Reclamation will consult with USFWS. The additional CAP water proposed under Settlement



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CAP Allocation Draft EIS **Cultural Resources** **Tohono O'odham Indian Nation**

Figure #L-IND-9

Alternative, Non-Settlement Alternative 2 and 3 would not be delivered to TON until consultation has been completed.

IV.D.4. Water Resources

The CAP allocations for the Schuk Toak and San Xavier Districts would vary under the alternatives considered. These areas are separated geographically, and the impacts for these two Districts are discussed in the subsections which follow.

IV.D.4.a. Schuk Toak District

CAP water would be used to bring new lands under production within the Schuk Toak District. Groundwater is contained in the basin fill materials, and groundwater generally occurs under unconfined conditions in the upper 1,000 feet of these materials. In general, groundwater levels historically declined in this area. The TDS concentration of groundwater in basin fill underlying the Schuk Toak District lands is less than 500 ppm.

Estimated groundwater level impacts are summarized in Table L-Indian-24, which shows the estimated change in groundwater levels from 2001 to 2051 for each alternative and the groundwater level impact (i.e., the difference between the change in groundwater levels for each alternative relative to the change for the No Action Alternative).

The relatively large decline in groundwater levels for all alternatives (ranging from 149 to 153 feet) is largely a reflection of assumed future pumping at a City of Tucson well field located to the south of the Schuk Toak District lands. The slightly higher groundwater levels (relative to the No Action Alternative) for the Settlement Alternative and Non-Settlement Alternatives 2, 3A, and 3B reflect the availability of CAP water to the Schuk Toak District and the corresponding reduction in groundwater pumping.

Impacts of the alternatives on water quality are anticipated to be negligible. However, there is the potential for subsidence in the southern area due to substantial lowering of groundwater levels in this area under all alternatives.

Table L-Indian-24 CAP Allocation Draft EIS TON, Schuk Toak¹–Groundwater Data Table		
Alternatives	Estimated Groundwater Decline from 2001 to 2051 (in Feet)	Groundwater Level Impact (in Feet)²
No Action	-153	--
Settlement Alternative	-149	4
Non-Settlement Alternative 1	-153	0
Non-Settlement Alternative 2	-150	3
Non-Settlement Alternative 3A	-150	3
Non-Settlement Alternative 3B	-150	3
(1) Corresponds to South Avra sub-area of Avra Valley analysis as discussed in Appendix I. (2) Computed by subtracting the estimated groundwater decline from 2001 to 2051 for the No Action Alternative from the estimated change in groundwater level for the same period for the alternative under consideration. The estimated impact is considered to be more accurate than the estimated decline in groundwater levels.		

IV.D.4.b. San Xavier District

There is presently limited agricultural development in the San Xavier District, and a portion of the CAP water would be used to bring additional lands under production which are located west of the Santa Cruz River. Groundwater is contained in the basin fill materials, and groundwater generally occurs under unconfined conditions in the upper portions of these materials that would likely be developed in the San Xavier District. Groundwater levels have historically declined in this area in response to groundwater pumping.

The TDS concentration of groundwater underlying these lands is generally less than 500 ppm, although there are some pockets of groundwater on or near the District to the north and east with TDS concentrations in the range of 1,000 to 3,000 ppm.

Estimated groundwater level impacts are summarized in Table L-Indian-25, which shows the estimated change in groundwater levels from 2001 to 2051 for each alternative and the groundwater level impact (i.e., the difference between the change in groundwater levels for each alternative relative to the change for the No Action Alternative). Higher groundwater levels (relative to the No Action Alternative) are predicted for the Settlement and all Non-Settlement Alternatives.

The San Xavier District receives CAP water under all action alternatives except Non-Settlement Alternative 1, which is used to meet irrigation demands and for direct recharge. This results in a positive impact of 73 to 83 feet due to the additional CAP allocation received under those alternatives. The smaller positive impact for Non-Settlement Alternative 1 results from changes in underflow due to use and recharge of CAP water in adjacent areas.

Impacts of the alternatives on water quality are anticipated to be negligible, although the direct recharge of CAP water could increase TDS concentrations locally. Because groundwater levels would be expected to be improved by the alternatives, subsidence impacts are not expected.

Table L-Indian-25 CAP Allocation Draft EIS TON, San Xavier¹–Groundwater Data Table		
Alternatives	Estimated Groundwater Decline from 2001 to 2051 (in Feet)	Groundwater Level Impact (in Feet)²
No Action	57	--
Settlement Alternative	139	83
Non-Settlement Alternative 1	64	7
Non-Settlement Alternative 2	130	73
Non-Settlement Alternative 3A	130	73
Non-Settlement Alternative 3B	137	81
(1) Corresponds to San Xavier East sub-area of Tucson analysis as discussed in Appendix I. (2) Computed by subtracting the estimated groundwater decline from 2001 to 2051 for the No Action Alternative from the estimated change in groundwater level for the same period for the alternative under consideration. The estimated impact is considered to be more accurate than the estimated decline in groundwater levels.		

IV.D.5. Socioeconomic

Historically, the TON farmed dry-land crops and relied on wild crops such as saguaro fruit, mesquite pods and cholla cactus flower buds. Federal, state and tribal agencies are the largest employers on the reservation. Cattle-raising and related activities form another major economic sector. Gaming was authorized in 1993 and the Desert Diamond Casino opened and created more than 500 jobs for TON members. In 1995 the facility was expanded. The TON has established an Industrial Park with a foreign trade zone. The agricultural, retail-tourism-gaming and utilities sectors of the reservation's economy are also expected to grow as tribal development plans are implemented. The Tohono O'odham Utility Authority along with the Arizona Tribal Coalition and others is developing a technology plan for the TON to connect schools and tribal offices to the internet.

Table L-Indian-26 summarizes the income statistics for the TON.

Table L-Indian-26 CAP Allocation Draft EIS Income Statistics for Tohono O'odham Nation	
Type of Income	Tohono O'odham Nation
Median Household Income	\$11,402
Per Capita Income (Poverty Status)	\$ 4,144
Persons Below Poverty	54%
Families Below Poverty	66%
Female Households, Families Below Poverty	61%
Households with Public Assistance Income	49%

Source: Bureau of the Census, 1990 Population and Housing Statistics

Under the No Action Alternative, the agricultural output of the San Xavier and Schuk Toak Districts combined is estimated to be \$5.764 million in the year 2051. Under the Settlement Alternative and Non-Settlement Alternatives 2 and 3, these districts of the TON increase their agricultural output by an estimated \$2.771 million above the No Action Alternative level in 2051. Non-Settlement Alternative 1 is estimated to have the same agricultural output as the No Action Alternative in year 2051.